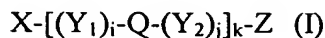


Claims:

- Sub B1
1. Linker system for activating surfaces for bioconjugation having the following general formula (I):



wherein X is a reactive group capable of covalently binding to a surface, Z is a reactive group capable of covalently binding to a biomolecule, with the proviso that X is not Z, Y<sub>1</sub> and Y<sub>2</sub> are independently from each other CR<sub>1</sub>R<sub>2</sub> with R<sub>1</sub> and R<sub>2</sub> being independently from each other H, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy or C<sub>1</sub>-C<sub>4</sub> acyloxy, i, j, k are independently from each other an integer in the range from 1 to 10, with the proviso that the total number of C atoms in Y<sub>1</sub> and Y<sub>2</sub>, the C atoms of R<sub>1</sub> and R<sub>2</sub> not included, is in the range of 2 to 100, and Q is a hydrophilic atom or group selected from the group consisting of O, NH, C=O, O-C=O and CR<sub>3</sub>R<sub>4</sub>, wherein R<sub>3</sub> and R<sub>4</sub> are independently from each other selected from the group consisting of H, OH, C<sub>1</sub>-C<sub>4</sub> alkoxy and C<sub>1</sub>-C<sub>4</sub> acyloxy, with the proviso that R<sub>3</sub> and R<sub>4</sub> are not H at the same time and that for Q = NH Z is not NH<sub>2</sub>, and wherein in the case of k > 1 the Q's for each [(Y<sub>1</sub>)<sub>i</sub>-Q-(Y<sub>2</sub>)<sub>j</sub>]<sub>k</sub> are independently selected from each other.

2. Linker system according to claim 1 wherein said reactive group X is selected from the group consisting of a disulfide group, a thiol group, a SiW<sub>3</sub> group with W being a hydrolyzable atom or group, and a group capable of forming free radicals such as an anthrathione group or a derivative thereof, an anthraquinone group or a derivative thereof, a benzophenone group or a derivative thereof.

3. Linker system according to claim 2 wherein said hydrolyzable atom or group W is selected from the group consisting of halides, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> acyloxy and amino groups.

Sub A1  
4. Linker system according to any of the preceding claims wherein said reactive group Z is capable of nucleophilic substitution reactions, nucleophilic addition reactions, Diels-Alder reactions or radical substitutions.

5 5. Linker system according to claim 4 wherein said reactive group Z is selected from the group consisting of a reactive double bond, a diene group, a dienophilic group, an epoxy group, an aldehyde group, a hydroxyl group, a carboxylic acid group, an active ester group, an amino group, a disulfide group, a thiol group, an aziridine group, an isocyanate group, an isothiocyanate group an azide group and a reactive leaving group.

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Sub A2  
6. Surface carrying a linker system according to any of claims 1 to 5.

7. Surface according to claim 6 wherein said linker system forms a patterned array.

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Sub A3  
8. Surface according to claims 6 or 7 wherein said surface is selected from the group consisting of a SiO<sub>2</sub> surface of a silicon wafer, glass, quartz, fused silica, gold and a polymer.

Sub A4  
9. Surface according to any of claims 6 to 8 wherein said linker system is covalently bonded to a biomolecule.

10. Surface according to claim 9 wherein said biomolecule is a partner of a specifically interacting system of complementary binding partners.

25 11. Surface according to claim 10 wherein said specifically interacting system of complementary binding partners is based on nucleic acid/complementary nucleic acid, peptide nucleic acid/nucleic acid, enzyme/substrate, receptor/effector, lectin/sugar, antibody/antigen, avidin/biotin or streptavidin/biotin interaction.

30 12. Surface according to claim 11 wherein said nucleic acid is a DNA or RNA.

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13. Surface according to claim 12 wherein said DNA or RNA is an oligonucleotide or an aptamer.

14. Surface according to claim 11 wherein said antibody is a polyclonal, monoclonal,  
5 chimeric or single-chain antibody or a functional fragment or derivative of such antibodies.

Sub A5 15. Process for the detection of a biomolecule which is a partner of a specifically  
interacting system of complementary binding partners comprising the steps of  
a) contacting a surface according to any of claims 10 to 14 with a sample suspected to  
10 contain the complementary binding partner,  
b) removing non-specifically bound sample components in a washing step, and  
c) detecting the specifically bound sample components.

Sub B3 16. Process according to claim 15 wherein for said detecting a colored, fluorescent,  
bioluminescent, chemoluminescent, phosphorescent or radioactive label, an enzyme, an  
antibody or a functional fragment or derivative thereof, a protein A/gold based system, a  
biotin/avidin/streptavidin based system or an enzyme electrode based system is used.

Sub A6 17. Process for the isolation of a biomolecule which is a partner of a specifically  
interacting system of complementary binding partners comprising the steps of  
a) contacting a surface according to any of claims 10 to 14 with a sample suspected to  
contain the complementary binding partner,  
b) removing non-specifically bound sample components in a washing step, and,  
optionally,  
25 c) eluting the specifically bound sample components.

Sub A7 18. Use of a surface according to any of claims 10 to 14 as an affinity matrix.

19. Use of a surface according to any of claims 10 to 14 in a sensor chip or biochip.

20. Medical or diagnostic instrument comprising a surface according to any of claims  
10 to 14.